same condition, though the proportions of the color variations were different. Of 60 specimens, 1 male and 2 workers had the propodeum black, 6 workers possessed just a trace of yellow, and 1 male, 1 queen and 49 workers had the spots developed in greater or less degree.

SPIRACLES AS SOUND PRODUCING ORGANS

BY CARL D. DUNCAN
Stanford University, California

During the summer of 1921, while on a collecting trip in western Texas in company with Professor and Mrs. G. F. Ferris of Stanford University, I took a number of specimens of a large grasshopper which produces a sound by means of its second pair of thoracic spiracles. The hopper has been tentatively determined for me by Mr. J. A. G. Rehn of the Philadelphia Academy of Natural Sciences as *Tæniopoda picticornis*. Mr. Rehn suggests that this may not be the correct name as the species composing the group to which this one belongs are poorly understood and the synonymy much involved.

The sound is of about the intensity of that resulting when two pieces of writing paper are rubbed together and is produced by the spewing out through the second thoracic spiracles of a small quantity of watery liquid at each exhalation. Many tiny bubbles are formed each time the sound is produced. These vary a great deal in number, being at times hardly noticeable and again forming a mass a good three-sixteenths of an inch in diameter. Immediately after being formed the bubbles disappear, leaving an area around the spiracles that is wet for a second or so.

There are no grounds for doubt as to the mechanism by means of which the sound is produced, for in addition to the fact that it is obviously synchronous with the exhalation of air from the tracheæ and the formation of the bubbles noted, it is exactly the sort of sound that one associates with the spewing of a mixture of air and liquid through a small hole, its intensity varies according to the amount of bubbles produced, and the sound ceases entirely when the production of bubbles ceases, as it does shortly (apparently due to a using up of the supply of liquid available) if the hoppers be continuously stimulated for a time. Moreover, the sound may be produced by nymphs as well as adults, thus eliminating the wings as stridulatory organs, and it may be produced even though the legs of the hoppers be held perfectly still. The sound is apparently under full control of the

insects and as far as I could learn, is produced only when they are disturbed.

These observations were confirmed by Professor and Mrs. Ferris.

The hoppers were taken on mesquite and acacia bushes, on the flowers of which they were feeding, in Brewster County, at the point where the road from Marathon to Glen Springs crosses Tornillo Creek.

A NEW WESTERN DOLICHOPODID

BY M. C. VAN DUZEE
Buffalo, N. Y.

Tetrechus spinitarsis M. C. Van Duzee, new species

Male. Length 5 mm. Face yellow, narrowed in the middle, rounded below. Front green, dulled with white pollen. Antennæ yellow. Third joint darker, small, rounded; first joint large and thick, upper surface with very stiff and very black hairs, which are longer apically and extend beyond the tip of the joint; arista very long and slender, about twice as long as the face, black, its tip widening into a lamella, the basal portion of which is white, apical part velvety black. Orbital cilia wholly black.

Dorsum of thorax green with blue reflections and brown pollen, which becomes gray on the lateral edges; pleuræ with the pollen more yellowish; one large, curved bristle and several stiff black hairs above each fore coxa; scutellum a little flattened on each side, so as to form a slight ridge in the center, with one pair of large and one pair of small bristles on the margin. Abdomen green, quite thickly covered with white pollen and with long black hair; venter with long black hair. Hypopygium green; upper surface of basal half covered with yellow tomentum, which becomes white posteriorly, a cluster of long, stiff, black hairs near the base on the left side and a few long, slender, pale hairs below these; outer lamellæ large, yellow, a little wider than long, the apical edge indented in the middle, so as to form two slightly convex lobes, fringed with pale hairs; they have rather long, black hairs on the surface, especially near the edges, inserted in minute black dots; the inner appendages are a pair of yellow, rather long, nearly bare organs; another pair of yellow organs, half as long as the others with two hairs at tip, and a pair of stout, black hooks near the base.

Fore coxæ yellow, distinctly blackened at extreme base, anterior surface covered with yellow pollen and black hairs, which are longer near the base; without bristles at tip. Middle coxæ blackish, their anterior surface yellow from the tip to above the middle; this yellow color seems to be caused partly by yellow pollen; front also with many black bristly hairs; hind coxæ wholly blackish. All femora and tibiæ yellow; middle femora slightly blackened at base, hind ones distinctly so; extreme tip of posterior femora and narrow base and tip of their tibiæ black. All femora bare on lower edge; anterior pair with stiff black hairs on posterior surface; middle ones with a row of short black bristles on lower anterior edge; hind femora with one preapical bristle. Fore